

NONSMOOTH PROBLEMS WITH APPLICATIONS IN MECHANICS 2025

Monday – May 19, 2025

venue: Faculty of Science, UP / Aula 2.001

- 9:00 10:30 Registration
- 10:30 11:00 Conference opening
- 11:00 12:00 Invited lecture chair Á. Arós

M. Sofonea: A Convergence Criterion for History–dependent Variational Inequalities

12:00 – 13:00 Lectures – chair Á. Arós

M. David: Discontinuous behavior of the thermal dissipation in a differentially heated cavity with conjugate heat transferC. Bajer: Subharmonic vibrations of microbubbles in the cloud driven by ultrasound

- 13:00 14:30 Lunch Menza UP
- 14:30 15:30 Invited lecture chair M. Sofonea

M. Shillor: The Damped Normal Compliance contact condition and frictional slip waves

15:30 – 16:00 Coffee break

16:00 - 17:00 Lectures - chair M. Sofonea

K. Kumar: Flow degeneracy in a fractured porous medium **S. Dumont:** Stochastic Models of Damaged Interfaces: A Numerical Study

17:00 - 20:00 Welcome drink – on the 6th floor

NOPAM 2025 Program

https://nopam25.upol.cz/



Tuesday – May 20, 2025

venue: Faculty of Science, UP / Room 3.005

Mini-symposium: Recent trends in differential equations and inequalities

9:00 – 11:00 Lectures – chair A. Ochal

M. Galewski: On the existence and uniqueness of mixed local–nonlocal Dirichlet boundary value problems

M. Majewski: A sufficient condition for existence of solutions for fractional ODE optimal control problem with convexity assumption

P. Candito: A unified approach for p-Laplacian differential inclusions depending on a parameter

K. Bartosz: Vanishing viscosity method for a noncoercive hyperbolic differential hemivariational inequality

- 11:00 11:30 Coffee break
- 11:30 13:00 Lectures chair L. Gasiński

B. Bąk: Elastic Body Simulation under Real-time Regime
A. Sciammetta: Existence of multiple solutions for certain classes of nonlinear anisotropic problems
P. Bartman- Szwarc: Global Subgradient Method for hemivariational inequalities

- 13:00 14:30 Lunch Menza UP
- 14:30 15:30 Lectures chair P. Candito

B. Vassallo: Two Positive Solutions for an Elliptic Differential Inclusion Driven by the Laplace Operator

A. Ochal: Penalty method in the study of nonsmooth quasistatic frictional contact with locking materials

- 15:30 16:00 Coffee break
- 16:00 17:00 Lectures chair P. Candito

G. Failla: Multiple positive solutions for quasilinear nonlocal problem via topological, variational and set–valued methods

L. Gasiński: Nonlocal p-Laplacian problem and Carrier's double phase problem

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Wednesday – May 21, 2025

venue: Faculty of Science, UP / Room 3.005

9:00 – 11:00 Invited lectures – chair M. Shillor

Á. Arós: Recent advances in the asymptotic analysis of contact problems for elastic shells

P. Krejčí: Non-convex variational inequalities in contact mechanics

- 11:00 11:30 Coffee break
- 11:30 13:00 Lectures chair P. Krejčí

I. Gudoshnikov: Regularity lost: the fundamental limitations and constraint qualifications in the problems of elastoplasticity

P. Piersanti: Finite Element Methods for fourth–order variational inequalities in elasticity

J. Gwinner: A Stability Result for Variational Inequalities Applied to Unilateral Problems in Mechanics

- 13:00 14:30 Lunch Menza UP
- 14:30 18:00 Excursion
- 18:00 23:00 Gala dinner on the 6th floor

Thursday – May 22, 2025 venue: Faculty of Science, UP / Room 3.005

9:00 – 11:00 Invited lectures – chair R. Vodák

M. Pokorný: Weak solutions for compressible viscoelastic fluid models in three space dimensions

J. Haslinger: Optimal control of systems governed by Stokes equations with non-smooth slip/leak conditions

11:00 – 11:30 Coffee break

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11:30 - 13:00	Lectures – chair J. Haslinger
	 S. Sysala: Convex optimization problems inspired by geotechnical stability analysis M.–M. Boureanu: Existence and regularity results for variable exponent systems R. Vodák: On Dimension Reduction and the Korn Inequality
13:00 - 14:30	Lunch – Menza UP
14:30 - 15:30	Lectures – chair J. Burkotová
	J. Andres: From Sharkovsky theorem to topological entropy for multivalued maps
15:30 - 16:00	Coffee break
16:00 - 17:00	Lectures – chair J. Burkotová
	P. Ludvík: From topological entropy to ergodic theory for multivalued maps J. Tomeček: Multiple Solutions to Dirichlet Problems in Billiard Spaces
Friday – Ma	venue: Faculty of Science, UP / Room 3.005

- 9:00 10:00 Invited lecture chair H. Netuka
 - I. Bock: On Optimal Design of Elastic Plates in a Dynamic Contact
- 10:00 11:00 Lectures chair H. Netuka

J. Burkotová: Reliable Lower Eigenvalue Bounds for Beam Buckling ProblemJ. Machalová: On Two Hypotheses About the Gao Beam

- 11:00-11:30 Coffee break
- 11:30 12:30 Lecture chair J. Machalová

H. Netuka: Analyzing the Gao beam using data analysis

- 12:30 13:00 Conference closing
- $13{:}00-14{:}30\quad Lunch-Menza\ UP$